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<110> Lyamichev, Victor
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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
            35   40   45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
        50   55   60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
65   70   75   80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
                85   90   95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
                100   105   110

95

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
115   120   125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
    130   135   140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
145   150   155   160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
            165   170   175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
        180   185   190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
        195   200   205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
    210   215   220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
225   230   235   240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
            245   250   255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
            260   265   270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
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Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
        290   295   300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
305   310   315   320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Asp Gly Arg Val
            325   330   335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
        340   345   350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
        355   360   365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
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Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
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Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
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Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
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Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
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Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
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Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
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Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
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Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
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Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
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Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
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His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
625               630               635               640

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
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Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
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Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
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Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
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Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
705               710               715               720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
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Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
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Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
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Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
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Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
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Ser Ala Lys Gly
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98

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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
           35                  40                  45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
       50                  55                  60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
 65                  70                  75                  80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
               85                  90                  95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
           100                 105                 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
           115                 120                 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
           130                 135                 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
145                 150                 155                 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
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Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
           180                 185                 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
           195                 200                 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
           210                 215                 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
225                 230                 235                 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
               245                 250                 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
               260                 265                 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
           275                 280                 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
           290                 295                 300
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100

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Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
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Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Asp Gly Arg Val
                325             330             335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
            340             345             350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
        355             360             365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
    370             375             380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
385             390             395             400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
            405             410             415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
        420             425             430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
    435             440             445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
    450             455             460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
465             470             475             480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
            485             490             495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
            500             505             510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
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Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
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Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
545             550             555             560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
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Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
            580             585             590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
            595             600             605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
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His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
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101

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Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
            660             665             670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
            675             680             685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
    690             695             700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
705             710             715                     720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
            725             730             735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
            740             745             750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
            755             760             765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
    770             775             780

Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
785             790             795                     800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
            805             810             815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
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Ser Ala Lys Gly
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103

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      gagctcacca agctcaagaa cacctacgtg gaccccctcc caagcctcgt ccacccgagg   1680

      acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc   1740

      tccgacccca acctgcagaa catccccgtc cgcacccccct tgggccagag gatccgccgg   1800

      gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc   1860

      cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggtcttcca ggaggggaag   1920

      gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccggaggc cgtggacccc   1980

      ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat   2040

      aggctctccc aggagcttgc catcccctac gaggaggcgg tggcctttat agagcgctac   2100

      ttccaaagct cccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag   2160

      cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgacct caacgcccgg   2220

      gtgaagagcg tcagggaggc cgcggagcgc atggccttca catgcccgt ccagggcacc   2280

      gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg   2340

      gcccgcatgc tcctccaggt ccacaacgag ctcctcctgg aggccccca gcgcgggcc   2400

      gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc   2460

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      caccac                                                                2526


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      <211>  842
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                                    105

<212> PRT

<213> Thermus thermophilus

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1   5   10   15

10   Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
                    20   25   30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
             35   40   45

15

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
         50   55   60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
20   65   70   75   80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
                 85   90   95

25   Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
                 100   105   110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
             115   120   125

30   Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
         130   135   140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
35   145   150   155   160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
                 165   170   175

40   Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
                 180   185   190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
             195   200   205

45

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
         210   215   220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
50   225   230   235   240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
                 245   250   255

55   Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
                 260   265   270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
             275   280   285

60   Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
             290   295   300

106

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    Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
    305             310             315                 320

  5 Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Asp Gly Arg Val
                325             330             335

    His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
                340             345             350

 10 Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
                355             360             365

    Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
        370             375             380

 15 Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
    385             390             395             400

    Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
                405             410             415

 20 His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
                420             425             430

    Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
 25             435             440             445

    Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
        450             455             460

 30 Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
    465             470             475             480

    Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 35             485             490             495

    Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
                500             505             510

    Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 40             515             520             525

    Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
        530             535             540

 45 Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
    545             550             555             560

    Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
 50             565             570             575

    Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
                580             585             590

 55 Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
                595             600             605

    Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
        610             615             620

 60 His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
    625             630             635             640

                                 107
```

```
Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
             645             650             655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
             660             665             670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
             675             680             685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
             690             695             700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
705             710             715             720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
             725             730             735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
             740             745             750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
             755             760             765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
             770             775             780

Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
785             790             795             800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
             805             810             815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
             820             825             830

Ser Ala Lys Gly His His His His His
             835             840
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<211> 31

<212> DNA

<213> synthetic

<400> 16

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<210> 17

<211> 26

<212> DNA

<213> synthetic

<400> 17

108

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        <210>   18

        <211>   23

        <212>   DNA

        <213>   synthetic

        <400>   18

        gtcctggccc atatggaggc cac                                          23


        <210>   19

        <211>   2526

        <212>   DNA

        <213>   Thermus thermophilus

        <400>   19

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        ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc   120

        gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac   180

        gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc   240

        tacgaggcct acaaggcggg gagggccccg accccgagg acttcccccg gcagctcgcc    300

        ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag   360

        gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc   420

        atcctcaccg ccgaccgcga cctctaccaa ctcgtctccg accgcgtcgc cgtcctccac   480

        cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag   540

        cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag   600

        ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc   660

        ctcaagaacc tggaccgggt aaagccagaa acgtccgggg agaagatcaa ggcccacctg   720

        gaagacctca ggctctcctt ggagctctcc cgggtgcgca ccgacctccc cctggaggtg   780

        gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg   840

        gagttcggca gcctcctcca cgagttcggc ctcctggagg cccccgcccc cctggaggag   900

        gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc   960

        atgtgggcgg agcttaaagc cctggccgcc tgcaggggcg ccgcgtgca ccgggcagca   1020

        gacccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc   1080


                                    109
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gagcttaggc ttcccgcctt ggggaagacg caaaagacag gcaagcgctc caccagcgcc    1560

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gagctcacca agctcaagaa cacctacgtg accccctcc aagcctcgt ccacccgagg    1680

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gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc    1860

cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggtcttcca ggagggggaag    1920

gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccggaggc cgtggacccc    1980

ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat    2040

aggctctccc aggagcttgc catccctac gaggaggcgg tggcctttat agagcgctac    2100

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cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgacct caacgcccgg    2220

gtgaagagcg tcagggaggc cgcggagcgc atggccttca acatgcccgt ccagggcacc    2280

gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg    2340

gccccgcatgc tcctccaggt ccacaacgag ctcctcctgg aggccccca agcgcgggcc    2400

gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc    2460

ctggaggtgg aggtgggggat gggggggaggac tggctttccg ccaagggtca ccaccaccac    2520

caccac                                                                2526
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<211> 842

<212> PRT

<213> Thermus thermophilus

<400> 20

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val

110

                 1   5   10   15

        Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
                     20   25   30
  5
        Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
                     35   40   45

        Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
             50   55   60
 10
        Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
        65   70   75   80

        Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
 15   85   90   95

        Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
                         100   105   110
 20
        Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
                     115   120   125

        Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
 25   130   135   140

        Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
        145   150   155   160

 30   Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
                         165   170   175

        Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
                     180   185   190
 35
        Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
                     195   200   205

        Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 40   210   215   220

        Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
        225   230   235   240

 45   Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
                     245   250   255

        Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
                     260   265   270
 50
        Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
                     275   280   285

        Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 55   290   295   300

        Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
        305   310   315   320

 60   Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
                     325   330   335

                                      111

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
530 535 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
625 630 635 640

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
660 665 670

112

```
Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
        675                 680                 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
        690             695                 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
705                 710                 715                 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp
                725                 730                 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
            740                 745                 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
            755                 760                 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
    770                 775                 780

Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
785                 790                 795                 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
            805                 810                 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
            820                 825                 830

Ser Ala Lys Gly His His His His His
            835                 840


<210>   21

<211>   30

<212>   DNA

<213>   synthetic

<400>   21

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<210>   22

<211>   2526

<212>   DNA

<213>   Thermus thermophilus

<400>   22

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gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac   180
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113

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        ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag          360

        gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc          420

        atcctcaccg ccgaccgcga cctctaccaa ctcgtctccg accgcgtcgc cgtcctccac          480

        cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag          540

        cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag          600

        ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc          660

        ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg          720

        gaagacctca ggctctcctt ggagctctcc cgggtgcgca ccgacctccc cctggaggtg          780

        gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg          840

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        gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc          960

        atgtgggcgg agcttaaagc cctggccgcc tgcaggggcg gccgcgtgca ccgggcagca         1020

        gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc         1080

        gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc         1140

        gcctacctcc tggacccttc gaacaccacc cccgaggggg tggcgcggcg ctacgggggg         1200

        gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc         1260

        cttaagcgcc tcgaggggga ggagaagctc ctttggctct accacgaggt ggaaaagccc         1320

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        gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc         1860

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        gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccggaggc cgtggacccc         1980

        ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat         2040
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114

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     5  cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgacct caacgcccgg    2220

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        gccgccgacc tcatgaagct cgccatggtg aagctcttcc ccgcctccg ggagatgggg     2340

    10  gcccgcatgc tcctccaggt cgccaacgag ctcctcctgg aggccccca agcgcgggcc      2400

        gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatccct cgccgtgccc      2460

    15  ctggaggtgg aggtggggat ggggaggac tggctttccg ccaagggtca ccaccaccac       2520

                                                                             2526
        caccac
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    Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
     1               5                   10                  15

    Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
                    20                  25                  30

    Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
                35                  40                  45

    Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
            50                  55                  60

    Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
    65                  70                  75                  80

    Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
                    85                  90                  95

    Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
                100                 105                 110

    Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
                115                 120                 125

    Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
            130                 135                 140

    Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
    145                 150                 155                 160

    Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
                    165                 170                 175
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115

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Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
        180                 185                 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
        195                 200                 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
    210                 215                 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
225                 230                 235                 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
                245                 250                 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
            260                 265                 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
        275                 280                 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
    290                 295                 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
305                 310                 315                 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
                325                 330                 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
            340                 345                 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
        355                 360                 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
    370                 375                 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
385                 390                 395                 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
            405                 410                 415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
        420                 425                 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
    435                 440                 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
    450                 455                 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
465                 470                 475                 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
            485                 490                 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
            500                 505                 510

                              116
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```
      Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
              515                 520                 525

  5   Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
              530                 535                 540

 10   Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
      545                 550                 555                 560

 10   Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
                  565                 570                 575

      Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
                  580                 585                 590

 15   Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
                  595                 600                 605

      Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
          610                 615                 620

 20   His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
      625                 630                 635                 640

      Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
                  645                 650                 655

 25   Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
                  660                 665                 670

 30   Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
                  675                 680                 685

      Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
          690                 695                 700

 35   Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
      705                 710                 715                 720

      Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
                  725                 730                 735

 40   Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
                  740                 745                 750

 45   Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
                  755                 760                 765

      Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
          770                 775                 780

 50   Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
      785                 790                 795                 800

 55   Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
                  805                 810                 815

      Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
                  820                 825                 830

 60   Ser Ala Lys Gly His His His His His
                  835                 840
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117

<210> 24

<211> 30

<212> DNA

<213> synthetic

<400> 24

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<210> 25

<211> 2526

<212> DNA

<213> Thermus thermophilus

<400> 25

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ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc   120

gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac   180

gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc   240

tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc   300

ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag   360

gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc   420

atcctcaccg ccgaccgcga cctctaccaa ctcgtctccg accgcgtcgc cgtcctccac   480

cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag   540

cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag   600

ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc   660

ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg   720

gaagacctca ggctctcctt ggagctctcc cgggtgcgca ccgacctccc cctggaggtg   780

gacctcgccc aggggcggga gcccgaccgg aggggctta gggccttcct ggagaggctg   840

gagttcggca gcctcctcca cgagttcggc ctcctggagg cccccgcccc cctggaggag   900

gcccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc   960

atgtgggcgg agcttaaagc cctggccgcc tgcagggcg ccgcgtgca ccgggcagca   1020

gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc   1080

gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc   1140

118

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        gcctacctcc tggacccttc gaacaccacc cccgagggg tggcgcggcg ctacggggg    1200

        gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc    1260

        cttaagcgcc tcgagggga ggagaagctc ctttggctct accacgaggt ggaaaagccc    1320

        ctctcccgg tcctggccca tatggaggcc accggggtac ggcgggacgt ggcctacctt    1380

        caggcccttt ccctggagct tgcggaggag atccgccgcc tcgaggagga ggtcttccgc    1440

        ttggcgggcc accccttcaa cctcaactcc cgggaccagc tggaaagggt gctctttgac    1500

        gagcttaggc ttcccgcctt gaagaagacg aagaagacag gcaagcgctc caccagcgcc    1560

        gcggtgctgg aggccctacg ggaggcccac cccatcgtgg agaagatcct ccagcaccgg    1620

        gagctcacca agctcaagaa cacctacgtg gacccccctcc caagcctcgt ccacccgagg    1680

        acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc    1740

        tccgacccca acctgcagaa catccccgtc cgcacccct tgggccagag gatccgccgg    1800

        gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc    1860

        cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggtcttcca ggaggggaag    1920

        gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccggaggc cgtggacccc    1980

        ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat    2040

        aggctctccc aggagcttgc catccccta cgaggaggcgg tggcctttat agagcgctac    2100

        ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag    2160

        cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgacct caacgcccgg    2220

        gtgaagagcg tcagggaggc cgcggagcgc atggccttca acatgcccgt ccagggcacc    2280

        gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg    2340

        gcccgcatgc tcctccaggt cgccaacgag ctcctcctgg aggccccca agcgcgggcc    2400

        gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc    2460

        ctggaggtgg aggtgggat ggggggaggac tggctttccg ccaagggtca ccaccaccac    2520

                                                                           2526
        caccac
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<210> 26

<211> 842

<212> PRT

<213> Thermus thermophilus

<400> 26

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Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
 1               5                  10                  15
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      Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
                  20              25                  30

  5   Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
                  35              40                  45

      Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
                  50              55                  60

 10   Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
      65              70              75                  80

      Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
                      85              90                  95
 15
      Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
                  100             105                 110

      Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
 20               115             120                 125

      Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
                  130             135                 140

 25   Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
      145             150             155                 160

      Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
                      165             170                 175
 30
      Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
                  180             185                 190

      Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
 35               195             200             205

      Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
                  210             215             220

 40   Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
      225             230             235                 240

      Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
                  245             250             255

 45   Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
                  260             265             270

      Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 50               275             280             285

      Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
                  290             295             300

 55   Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
      305                 310             315                 320

      Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
                      325             330                 335
 60
      His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
                  340             345             350


                                   120
```

```
    Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
            355                 360                 365

 5  Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
            370                 375                 380

    Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
    385                 390                 395                 400

10  Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
                    405                 410                 415

    His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
                420                 425                 430
15
    Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
                435                 440                 445

    Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
20          450                 455                 460

    Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
    465                 470                 475                 480

25  Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
                    485                 490                 495

    Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Lys Lys Thr Lys Lys
                500                 505                 510
30
    Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
                515                 520                 525

    Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
35          530                 535                 540

    Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
    545                 550                 555                 560

40  Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
                    565                 570                 575

    Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
                580                 585                 590
45
    Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
                595                 600                 605

    Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
50          610                 615                 620

    His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
    625                 630                 635                 640

55  Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
                    645                 650                 655

    Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
                660                 665                 670
60
    Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
                675                 680                 685
```

121

```
      Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
          690             695             700

 5    Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
      705             710             715             720

      Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
                  725             730             735

10    Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
                  740             745             750

      Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
                  755             760             765

15
      Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
          770             775             780

      Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
20    785             790             795             800

      Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
                  805             810             815

25    Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
                  820             825             830

      Ser Ala Lys Gly His His His His His
                  835             840

30
      <210>  27

      <211>  340

35    <212>  PRT

      <213>  Pyrococcus furiosus

40    <400>  27

      Met Gly Val Pro Ile Gly Glu Ile Ile Pro Arg Lys Glu Ile Glu Leu
        1               5               10              15

45    Glu Asn Leu Tyr Gly Lys Lys Ile Ala Ile Asp Ala Leu Asn Ala Ile
                  20              25              30

      Tyr Gln Phe Leu Ser Thr Ile Arg Gln Lys Asp Gly Thr Pro Leu Met
                  35              40              45

50
      Asp Ser Lys Gly Arg Ile Thr Ser His Leu Ser Gly Leu Phe Tyr Arg
          50              55              60

      Thr Ile Asn Leu Met Glu Ala Gly Ile Lys Pro Val Tyr Val Phe Asp
55    65              70              75              80

      Gly Glu Pro Pro Glu Phe Lys Lys Lys Glu Leu Glu Lys Arg Arg Glu
                  85              90              95

60    Ala Arg Glu Glu Ala Glu Glu Lys Trp Arg Glu Ala Leu Glu Lys Gly
                  100             105             110
```

122

Glu Ile Glu Glu Ala Arg Lys Tyr Ala Gln Arg Ala Thr Arg Val Asn
            115   120   125

Glu Met Leu Ile Glu Asp Ala Lys Lys Leu Leu Glu Leu Met Gly Ile
        130   135   140

Pro Ile Val Gln Ala Pro Ser Glu Gly Glu Ala Gln Ala Ala Tyr Met
145   150   155   160

Ala Ala Lys Gly Ser Val Tyr Ala Ser Ala Ser Gln Asp Tyr Asp Ser
            165   170   175

Leu Leu Phe Gly Ala Pro Arg Leu Val Arg Asn Leu Thr Ile Thr Gly
            180   185   190

Lys Arg Lys Leu Pro Gly Lys Asn Val Tyr Val Glu Ile Lys Pro Glu
            195   200   205

Leu Ile Ile Leu Glu Glu Val Leu Lys Glu Leu Lys Leu Thr Arg Glu
        210   215   220

Lys Leu Ile Glu Leu Ala Ile Leu Val Gly Thr Asp Tyr Asn Pro Gly
225   230   235   240

Gly Ile Lys Gly Ile Gly Leu Lys Lys Ala Leu Glu Ile Val Arg His
            245   250   255

Ser Lys Asp Pro Leu Ala Lys Phe Gln Lys Gln Ser Asp Val Asp Leu
            260   265   270

Tyr Ala Ile Lys Glu Phe Phe Leu Asn Pro Pro Val Thr Asp Asn Tyr
            275   280   285

Asn Leu Val Trp Arg Asp Pro Asp Glu Glu Gly Ile Leu Lys Phe Leu
        290   295   300

Cys Asp Glu His Asp Phe Ser Glu Glu Arg Val Lys Asn Gly Leu Glu
305   310   315   320

Arg Leu Lys Lys Ala Ile Lys Ser Gly Lys Gln Ser Thr Leu Glu Ser
            325   330   335

Trp Phe Lys Arg
            340

<210>   28

<211>   326

<212>   PRT

<213>   Methanococcus jannaschii

<400>   28

Met Gly Val Gln Phe Gly Asp Phe Ile Pro Lys Asn Ile Ile Ser Phe
    1   5   10   15

Glu Asp Leu Lys Gly Lys Lys Val Ala Ile Asp Gly Met Asn Ala Leu
            20   25   30

Tyr Gln Phe Leu Thr Ser Ile Arg Leu Arg Asp Gly Ser Pro Leu Arg
            35   40   45

123

Asn Arg Lys Gly Glu Ile Thr Ser Ala Tyr Asn Gly Val Phe Tyr Lys
    50   55   60

Thr Ile His Leu Leu Glu Asn Asp Ile Thr Pro Ile Trp Val Phe Asp
    65   70   75   80

Gly Glu Pro Pro Lys Leu Lys Glu Lys Thr Arg Lys Val Arg Arg Glu
            85   90   95

Met Lys Glu Lys Ala Glu Leu Lys Met Lys Glu Ala Ile Lys Lys Glu
            100   105   110

Asp Phe Glu Glu Ala Ala Lys Tyr Ala Lys Arg Val Ser Tyr Leu Thr
        115   120   125

Pro Lys Met Val Glu Asn Cys Lys Tyr Leu Leu Ser Leu Met Gly Ile
    130   135   140

Pro Tyr Val Glu Ala Pro Ser Glu Gly Glu Ala Gln Ala Ser Tyr Met
145   150   155   160

Ala Lys Lys Gly Asp Val Trp Ala Val Val Ser Gln Asp Tyr Asp Ala
            165   170   175

Leu Leu Tyr Gly Ala Pro Arg Val Val Arg Asn Leu Thr Thr Thr Lys
        180   185   190

Glu Met Pro Glu Leu Ile Glu Leu Asn Glu Val Leu Glu Asp Leu Arg
        195   200   205

Ile Ser Leu Asp Asp Leu Ile Asp Ile Ala Ile Phe Met Gly Thr Asp
    210   215   220

Tyr Asn Pro Gly Gly Val Lys Gly Ile Gly Phe Lys Arg Ala Tyr Glu
225   230   235   240

Leu Val Arg Ser Gly Val Ala Lys Asp Val Leu Lys Lys Glu Val Glu
            245   250   255

Tyr Tyr Asp Glu Ile Lys Arg Ile Phe Lys Glu Pro Lys Val Thr Asp
            260   265   270

Asn Tyr Ser Leu Ser Leu Lys Leu Pro Asp Lys Glu Gly Ile Ile Lys
        275   280   285

Phe Leu Val Asp Glu Asn Asp Phe Asn Tyr Asp Arg Val Lys Lys His
    290   295   300

Val Asp Lys Leu Tyr Asn Leu Ile Ala Asn Lys Thr Lys Gln Lys Thr
305   310   315   320

Leu Asp Ala Trp Phe Lys
            325

<210> 29

<211> 328

<212> PRT

<213> Methanobacterium thermoautotrophicum

124

<400> 29

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Met Gly Val Lys Leu Arg Asp Val Val Ser Pro Arg Arg Ile Arg Leu
 1               5                  10                  15

Glu Asp Leu Arg Gly Arg Thr Val Ala Val Asp Ala Ala Asn Thr Leu
            20                  25                  30

Tyr Gln Phe Leu Ser Ser Ile Arg Gln Arg Asp Gly Thr Pro Leu Met
        35                  40                  45

Asp Ser Arg Gly Arg Val Thr Ser His Leu Ser Gly Ile Leu Tyr Arg
    50                  55                  60

Thr Ala Ala Val Met Glu Arg Glu Ile Arg Val Ile Tyr Val Phe Asp
65                  70                  75                  80

Gly Arg Ser His His Leu Lys Gly Glu Thr Val Ser Arg Arg Ala Asp
                85                  90                  95

Ile Arg Lys Lys Ser Glu Val Glu Trp Lys Arg Ala Leu Glu Glu Gly
            100                 105                 110

Asp Ile Asp Arg Ala Arg Lys Tyr Ala Val Arg Ser Ser Arg Met Ser
        115                 120                 125

Ser Glu Ile Leu Glu Ser Ser Lys Arg Leu Leu Glu Leu Leu Gly Ile
    130                 135                 140

Pro Tyr Val Gln Ala Pro Gly Glu Gly Glu Ala Gln Ala Ser Tyr Met
145                 150                 155                 160

Val Lys Met Gly Asp Ala Trp Ala Val Ala Ser Gln Asp Tyr Asp Cys
            165                 170                 175

Leu Leu Phe Gly Ala Pro Arg Val Val Arg Lys Val Thr Leu Ser Gly
        180                 185                 190

Lys Leu Glu Asp Pro His Ile Ile Glu Leu Glu Ser Thr Leu Arg Ala
    195                 200                 205

Leu Ser Ile Ser His Thr Gln Leu Val Asp Met Ala Leu Leu Val Gly
    210                 215                 220

Thr Asp Phe Asn Glu Gly Val Lys Gly Tyr Gly Ala Arg Arg Gly Leu
225                 230                 235                 240

Lys Leu Ile Arg Glu Lys Gly Asp Ile Phe Lys Val Ile Arg Asp Leu
            245                 250                 255

Glu Ala Asp Ile Gly Gly Asp Pro Gln Val Leu Arg Arg Ile Phe Leu
        260                 265                 270

Glu Pro Glu Val Ser Glu Asp Tyr Glu Ile Arg Trp Arg Lys Pro Asp
        275                 280                 285

Val Glu Gly Val Ile Glu Phe Leu Cys Thr Glu His Gly Phe Ser Glu
    290                 295                 300

Asp Arg Val Arg Asp Ala Leu Lys Lys Phe Glu Gly Ala Ser Ser Thr
305                 310                 315                 320
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125

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Gln Lys Ser Leu Glu Asp Trp Phe
                325


<210>  30

<211>  336

<212>  PRT

<213>  Afu

<400>  30


Met Gly Ala Asp Ile Gly Asp Leu Phe Glu Arg Glu Glu Val Glu Leu
  1           5               10              15

Glu Tyr Phe Ser Gly Lys Lys Ile Ala Val Asp Ala Phe Asn Thr Leu
            20              25              30

Tyr Gln Phe Ile Ser Ile Ile Arg Gln Pro Asp Gly Thr Pro Leu Lys
            35              40              45

Asp Ser Gln Gly Arg Ile Thr Ser His Leu Ser Gly Ile Leu Tyr Arg
        50              55              60

Val Ser Asn Met Val Glu Val Gly Ile Arg Pro Val Phe Val Phe Asp
 65              70              75              80

Gly Glu Pro Pro Glu Phe Lys Lys Ala Glu Ile Glu Glu Arg Lys Lys
                85              90              95

Arg Arg Ala Glu Ala Glu Glu Met Trp Ile Ala Ala Leu Gln Ala Gly
            100             105             110

Asp Lys Asp Ala Lys Lys Tyr Ala Gln Ala Ala Gly Arg Val Asp Glu
            115             120             125

Tyr Ile Val Asp Ser Ala Lys Thr Leu Leu Ser Tyr Met Gly Ile Pro
    130             135             140

Phe Val Asp Ala Pro Ser Glu Gly Glu Ala Gln Ala Ala Tyr Met Ala
145             150             155             160

Ala Lys Gly Asp Val Glu Tyr Thr Gly Ser Gln Asp Tyr Asp Ser Leu
            165             170             175

Leu Phe Gly Ser Pro Arg Leu Ala Arg Asn Leu Ala Ile Thr Gly Lys
            180             185             190

Arg Lys Leu Pro Gly Lys Asn Val Tyr Val Asp Val Lys Pro Glu Ile
        195             200             205

Ile Ile Leu Glu Ser Asn Leu Lys Arg Leu Gly Leu Thr Arg Glu Gln
    210             215             220

Leu Ile Asp Ile Ala Ile Leu Val Gly Thr Asp Tyr Asn Glu Gly Val
225             230             235             240

Lys Gly Val Gly Val Lys Lys Ala Leu Asn Tyr Ile Lys Thr Tyr Gly
```

126

Asp Ile Phe Arg Ala Leu Lys Ala Leu Lys Val Asn Ile Asp His Val
            260   265   270

Glu Glu Ile Arg Asn Phe Phe Leu Asn Pro Pro Val Thr Asp Asp Tyr
            275   280   285

Arg Ile Glu Phe Arg Glu Pro Asp Phe Glu Lys Ala Ile Glu Phe Leu
    290   295   300

Cys Glu Glu His Asp Phe Ser Arg Glu Arg Val Glu Lys Ala Leu Glu
305   310   315   320

Lys Leu Lys Ala Leu Lys Ser Thr Gln Ala Thr Leu Glu Arg Trp Phe
            325   330   335

<210>   31

<211>   27

<212>   DNA

<213>   synthetic

<220><221>   misc_feature<222>   (17)..(18)<223>   n = degeneracy

<220><221>   misc_feature<222>   (27)..(28)<223>   n = degeneracy

<400>   31

atctctagca ctgctgtntt ygayggn   27

<210>   32

<211>   31

<212>   DNA

<213>   synthetic

<220><221>   misc_feature<222>   (21)..(22)<223>   n = degeneracy

<220><221>   misc_feature<222>   (27)..(28)<223>   n = degeneracy

<400>   32

gatctctagc actgctgarg gngargcnca r   31

<210>   33

<211>   28

<212>   DNA

<213>   synthetic

<400>   33

gatctctagc actgctcarg aytaygay   28

<210> 34

<211> 31

<212> DNA

<213> synthetic

<220><221> misc_feature<222> (19)..(20)<223> n = degeneracy

<220><221> misc_feature<222> (25)..(26)<223> n = degeneracy

<400> 34

cttaaggtag gactacytgn gcytcnccyt c   31

<210> 35

<211> 30

<212> DNA

<213> synthetic

<400> 35

ttaaggtagg actacytcrt aytcytgrct   30

<210> 36

<211> 30

<212> DNA

<213> synthetic

<220><221> misc_feature<222> (27)..(28)<223> n = degeneracy

<400> 36

ttaaggtagg actacytcrt aytcytgnga   30

<210> 37

<211> 30

<212> DNA

<213> synthetic

<220><221> misc_feature<222> (24)..(25)<223> n = degeneracy

<220><221> misc_feature<222> (27)..(28)<223> n = degeneracy

<400> 37

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  5    <210>  38

       <211>  16

       <212>  DNA

 10    <213>  synthetic

       <400>  38

       gatctctagc actgct                                                       16
 15

       <210>  39

       <211>  17

 20    <212>  DNA

       <213>  synthetic

 25    <400>  39

       ccttaaggta ggactac                                                      17


 30    <210>  40

       <211>  27

       <212>  DNA

 35    <213>  synthetic

       <400>  40

 40    tatcgcagcg atccacttct cctctgc                                           27


       <210>  41

 45    <211>  27

       <212>  DNA

       <213>  synthetic
 50
       <400>  41

       cttaaacggc aacctgagaa ggcttgg                                           27

 55
       <210>  42

       <211>  28

 60    <212>  DNA

       <213>  synthetic
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<400> 42

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taacgaattc ggtgcagaca taggcgaact ac   32

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<211> 1017

<212> DNA

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<400> 47

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caacctgacg gcactccttt gaaggattct cagggtagaa tgacctcaca cctctccggc     180

atcctgtacc gcgtgtcaaa catgatcgag gttggaatga cccatttt cgttttcgat       240

ggtgagcctc ctgttttcaa gcagaaggag atagaggaac gaaaggaaag aagagctgaa     300

gcagaggaga agtggatcgc tgcgatagag agaggagaga agtacgcaaa gaagtacgct     360

caggcagcgg cgagggttga tgaatacatc gtcgagtcgt caaagaagct gcttgagtat     420

atgggagttc catgggttca ggcgccgagt gagggagagg cacaggctgc atacatggca     480

gcgaagggcg atgtagattt tactggctcg caggattacg actcgcttct cttcggcagc     540

ccaaagcttg caagaaatct cgcgattact ggaaagagga agctgcccgg aaagaatgtt     600

tacgttgagg tcaaaccaga gataatagac ttaaacggca acctgagaag gcttggaata     660

acaagggaac agctcgtcga tatcgcgttg ctcgtgggaa cggactacaa cgaaggagtg     720

aagggcgttg gggtcaagaa ggcctacaag tacataaaaa cctacggaga tgttttcaaa     780

gctctcaagg ccttaaaggt agagcaggag aacatagagg agataagaaa cttcttcctg     840

aacccgcctg ttacgaacaa ctacagcctc cacttcggaa agccagacga tgagaagatt     900

atcgagttcc tgtgtgaaga gcacgacttt agcaaggata gggtagagaa ggccgttgag     960

aagctgaaag caggaatgca agcctcgcaa tcaacgcttg agaggtggtt ttcctga       1017
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Glu Tyr Phe Ser Gly Arg Lys Ile Ala Ile Asp Ala Phe Asn Thr Leu
                20                  25                  30

Tyr Gln Phe Ile Ser Ile Ile Arg Gln Pro Asp Gly Thr Pro Leu Lys
            35                  40                  45

Asp Ser Gln Gly Arg Met Thr Ser His Leu Ser Gly Ile Leu Tyr Arg
        50                  55                  60

Val Ser Asn Met Ile Glu Val Gly Met Arg Pro Ile Phe Val Phe Asp
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131

Gly Glu Pro Pro Val Phe Lys Gln Lys Glu Ile Glu Glu Arg Lys Glu
                    85   90   95

Arg Arg Ala Glu Ala Glu Glu Lys Trp Ile Ala Ala Ile Glu Arg Gly
            100   105   110

Glu Lys Tyr Ala Lys Lys Tyr Ala Gln Ala Ala Ala Arg Val Asp Glu
        115   120   125

Tyr Ile Val Glu Ser Ser Lys Lys Leu Leu Glu Tyr Met Gly Val Pro
    130   135   140

Trp Val Gln Ala Pro Ser Glu Gly Glu Ala Gln Ala Ala Tyr Met Ala
145   150   155   160

Ala Lys Gly Asp Val Asp Phe Thr Gly Ser Gln Asp Tyr Asp Ser Leu
            165   170   175

Leu Phe Gly Ser Pro Lys Leu Ala Arg Asn Leu Ala Ile Thr Gly Lys
            180   185   190

Arg Lys Leu Pro Gly Lys Asn Val Tyr Val Glu Val Lys Pro Glu Ile
        195   200   205

Ile Asp Leu Asn Gly Asn Leu Arg Arg Leu Gly Ile Thr Arg Glu Gln
    210   215   220

Leu Val Asp Ile Ala Leu Leu Val Gly Thr Asp Tyr Asn Glu Gly Val
225   230   235   240

Lys Gly Val Gly Val Lys Lys Ala Tyr Lys Tyr Ile Lys Thr Tyr Gly
            245   250   255

Asp Val Phe Lys Ala Leu Lys Ala Leu Lys Val Glu Gln Glu Asn Ile
            260   265   270

Glu Glu Ile Arg Asn Phe Phe Leu Asn Pro Pro Val Thr Asn Asn Tyr
        275   280   285

Ser Leu His Phe Gly Lys Pro Asp Asp Glu Lys Ile Ile Glu Phe Leu
    290   295   300

Cys Glu Glu His Asp Phe Ser Lys Asp Arg Val Glu Lys Ala Val Glu
305   310   315   320

Lys Leu Lys Ala Gly Met Gln Ala Ser Gln Ser Thr Leu Glu Arg Trp
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Phe Ser

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<210>   51

<211>   26

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<213>   synthetic

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<210>   52

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<220><221> misc_feature<222> (22)..(23)<223> misc. feature

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10   <210>   54

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15   <213>   synthetic

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20   cttaccaacg ctaacgagcg tcttg   25

<210>   55

25   <211>   14

<212>   DNA

<213>   synthetic

30   <400>   55

gctcccgcag acac   14

35   <210>   56

<211>   15

40   <212>   DNA

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55   <212>   DNA

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<210> 58

<211> 19

<212> DNA

<213> synthetic

<400> 58

gctcaaggca ctcttgccc   19

<210> 59

<211> 63

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ata   63

<210> 60

<211> 45

<212> DNA

<213> synthetic

<400> 60

ttttttttta attaggctct ggaaagacgc tcgtgaaacg agcgt   45

<210> 61

<211> 14

<212> DNA

<213> synthetic

<400> 61

cttcggagtt tggg   14

<210> 62

<211> 16

<212> DNA

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135

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<400> 66

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136

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<211> 27

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<400> 67

ccatcctaat acgactcact atagggc   27

<210> 68

<211> 21

<212> DNA

<213> synthetic

<400> 68

ctcatacagt tacttgtctt c   21

<210> 69

<211> 489

<212> RNA

<213> Homo sapiens

<400> 69

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cgugaaaacc cuuacgggga agaccaucac ccucgagguu gaacccucgg auacgauaga   120

aaauguaaag gccaagaucc aggauaagga aggaauuccu ccugaucagc agagacugau   180

cuuugcuggc aagcagcugg aagauggacg uacuuugucu gacuacaaua uucaaaagga   240

gucuacucuu caucuugugu ugagacuucg uggugguugcu aagaaaagga agaagaaguc   300

uuuacaccacu cccaagaaga auaagcacaa gagaaagaag guuaagcugg cuguccugaa   360

auauuauaag guggaugaga auggcaaaau uagucgccuu cgucgagagu gcccuucuga   420

ugaauguggu gcuggggugu uuauggcaag ucacuuugac agacauuauu guggcaaaug   480

uugucugac   489

<210> 70

<211> 52

<212> DNA

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gggaaagucu cugccgcccu ucugugccug cugcucauag cagccaccuu cauuccccaa   60

gggcucgcuc agccagaugc aaucaaugcc ccagucaccu gcuguuauaa cuucaccaau   120

aggaagaucu cagugcagag gcucgcgagc uauagaagaa ucaccagcag caagugcccc   180

aaagaagcug ugaucuucaa gaccauugug gccaaggaga ucugugcuga ccccaagcag   240

aaguggguuc aggauuccau ggaccaccug gacaagcaaa cccaaacucc gaagacuuga   300

acacucacuc cacaacccaa gaaucugcag cuaacuuauu uuccccuagc uuuccccaga   360

cacccuguuu uauuuuauua uaaugaauuu guuuguuuga ugugaaacau uaugccuuaa   420

guaauguuaa uucuuauuua aguuauugau guuuuaaguu uaucuuucau gguacuagug   480

uuuuuuagau acagagacuu ggggaaauug cuuuuccucu ugaaccacag uucuaccccu   540

gggauguuuu gagggucuuu gcaagaauca uuaauacaaa gaauuuuuuu uaacauucca   600

augcauugcu aaaauauuau uguggaaaug aauauuuugu aacuauu   647

ttcttcggag tttggg   16

<210>   74

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<400>   74

ccgtcacgcc tccttcggag tttggg   26

<210>   75

<211>   24

<212>   DNA

<213>   synthetic

<400>   75

aacccaaact ccgaaggagg cgtg   24

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<211>   29

<212>   DNA

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<400>   76

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<211>   17

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<212>   DNA

139

<213> synthetic

<400> 78

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<400> 80

acgatagaaa atgtaaaggt gcgc   24

<210> 81

<211> 29

<212> DNA

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<400> 81

cggaagaagc aagtggtgcg cctcgttaa   29

<210> 82

<211> 16

<212> DNA

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<400> 82

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<210> 83

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<400> 83

gctcccgcag acac   14

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<400> 85

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